

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-137090

(43)Date of publication of application : 01.06.1993

(51)Int.Cl.

H04N 5/46
H04N 5/64
H04N 7/00

(21)Application number : 03-295559

(71)Applicant : MITSUBISHI ELECTRIC CORP

(22)Date of filing : 12.11.1991

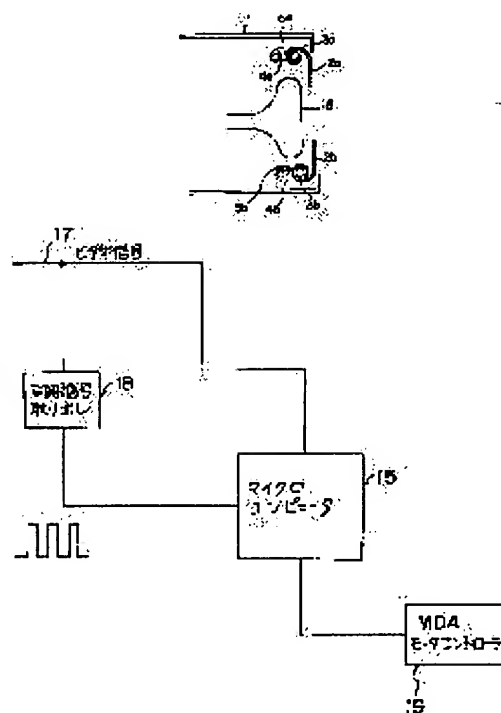
(72)Inventor : SAKUI MASATO

(54) VIDEO OUTPUT DEVICE

(57)Abstract:

PURPOSE: To prevent designability in appearance from being impaired by covering a ineffective screen generated when videos with different aspect ratios are displayed on a display means with a movable shielding body.

CONSTITUTION: The synchronizing signal of a video signal 17 is fetched out at a synchronizing signal fetching circuit 18, and also, the video signal 17 is inputted to a microcomputer 15, and the microcomputer 15 controls an MDA motor controller 19 by discriminating a video signal with aspect ratio of 16:9 or 4:3 by the video signal and the synchronizing signal fetched at the synchronizing signal fetching circuit 18. Driving control for motors 5a, 5b are performed, and the ineffective screen when a signal with cinema size is displayed on a cathode-ray tube 6 with aspect ratio of 4:3 and the video signal with aspect ratio of 4:3 is displayed on a cathode-ray tube with aspect ratio of 16:9 is covered with the movable shielding bodies 2a, 2b. In such a way, it is possible to cover the ineffective screen generated by the signals with different aspect ratios and to eliminate unpleasantness on the designability.



LEGAL STATUS

- [Date of request for examination]
- [Date of sending the examiner's decision of rejection]
- [Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]
- [Date of final disposal for application]
- [Patent number]
- [Date of registration]
- [Number of appeal against examiner's decision of rejection]
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CLAIMS

[Claim(s)]

[Claim 1] A distinction means included in a video signal to distinguish an aspect ratio and cinema size information at least, The movable shield object which covers the non-usual picture area produced for this display means when displaying a different video signal from the aspect ratio of a display means, The image output unit equipped with the driving means which drives this movable shield object, and an actuation control means to perform actuation control of the above-mentioned driving means so that the above-mentioned non-usual picture area produced for the above-mentioned display means according to the result of distinction of the above-mentioned distinction means may be covered with the above-mentioned movable shield object.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the image output unit to which it enabled it to change the screen size of a television set (it is hereafter called television for short) etc. in design corresponding to the aspect ratio in a video signal.

[0002]

[Description of the Prior Art] Operating a screen with the signal of the selection switching circuit where the usual picture area of an image equips (1) JP,1-264382,A with the circuit which amplifies [aligns them and] and restores to an aspect ratio 4:3 and Hi-Vision 16:9, respectively, respectively as a well-known example which also displays a different image from the aspect ratio (4:3) of a standard television picture, and changes this two circuit conventionally is indicated.

[0003] (2) JP,2-179085,A -- 16: -- carrying out the analog / digital conversion of the change of 9 or 4:3 screens once, writing in memory and carrying out a digital to analog further, and making the screen of various aspect ratios correspond by changing the clock written in memory, and the switch which changes the clock being interlocked with, and trying to move a movable screen is indicated.

[0004] (3) Making it a display borderline not be in sight to the television signal of any aspect ratios is indicated by covering with a shield some display screens of the cathode-ray tube which displays two or more television signals with which aspect ratios differ on JP,3-89686,A, and expanding the display rectangle of the display screen of this cathode-ray tube with a display rectangle amplification means.

[0005] (4) In JP,3-89686,A, when displaying the image which has the 1st aspect ratio, the image which has the 2nd aspect ratio, and the image which has the 2nd aspect ratio on the display screen which has the 1st aspect ratio The image part which supplies a signal also to the image part which is unrelated to the image of the 2nd aspect ratio, and is unrelated to the image of the 2nd aspect ratio during the display of the image of the 2nd aspect ratio A bonnet, Making it not cover an image part with a good adjustment covering means is indicated during the display of the image of the 1st aspect ratio.

[0006] Drawing 6 and drawing 7 show the image by the whole magnitude and the video signal of television etc. when the conventional screen size changes. Among these, drawing 6 shows the image screen 51 of the cinema size at the time of copying the signal of cinema size to the conventional Braun tube of 4:3, and the aspect ratio of an image screen serves as cinema size, and the black part 50 which does not shine in the vertical direction of the Braun tube, i.e., a non-usual picture area, produces it.

[0007] Moreover, drawing 7 shows the image screen 53 at the time of copying the video signal of the present aspect ratio 4:3 on the Braun tube of the 16:9 grades of an aspect ratio, and, in the case of this drawing 7, the non-usual picture area 52 of a black part produces it at the longitudinal direction of a screen.

[0008]

[Problem(s) to be Solved by the Invention] When the video signal with which such aspect ratios differ was copied out on a television screen, the non-significant part produced on a screen arose as a black part, and the technical problem that the side currently seen was not suitable also in feeling top design of

** occurred.

[0009] This invention was made in order to cancel the above technical problems, it makes a design adjustable for the non-usual picture area produced when the image of cinema size is copied out on the present standard television screen, or when the image of an aspect ratio 4:3 is projected on the display means of an aspect ratio 16:9 in design, can double a screen size and aims at obtaining the image output unit which can cancel displeasure.

[0010]

[Means for Solving the Problem] The image output unit concerning this invention establishes a distinction means included a wrap movable shield object, the driving means which drives this movable shield object, and in a video signal in the non-usual picture area produced at the time of the video-signal image display in which the usual picture area of an image differs from an aspect ratio distinguish an aspect ratio and cinema size information at least, and an actuation control means to by_ which the distinction result of this distinction means performs actuation control of a driving means.

[0011]

[Function] The distinction means in this invention controls a driving means according to the result of the distinction of the video signal distinguish an aspect ratio and cinema size information at least, control an actuation control means according to the result of that distinction, and according [an actuation control means] to a distinction means, or cinema size information included in a video signal, and covers the non-usual picture area of a display means for a movable shield object automatically on the basis of that control.

[0012]

[Example] Hereafter, the example of the image output unit of this invention is explained based on a drawing. Drawing 1 is the sectional view showing the Braun tube and the rough configuration of a circumference part of the television set with which the one example is applied. Although the case where the Braun tube 6 is being used is illustrated as a display means in this drawing 1 and this invention may be the display unit of liquid crystal and others of course besides the Braun tube 6, the following explanation explains for convenience taking the case of the case of explanation where the Braun tube 6 is used.

[0013] In this drawing 1, 1 is the housing of a television set, and opening is carried out to the center section of the front face of this housing 1, the screen of the Braun tube 6 is exposed, and it is possible about image display. In a part for the vertical part of this Braun tube 6, and the left right part, the non-usual picture area produced at the time of the display from which an aspect ratio differs is covered with movable shield object 2a and 2b.

[0014] That is, in the column of the above "a Prior art", if the image of 4:3 is displayed on the Braun tube of an aspect ratio 16:9 as drawing 6 and drawing 7 explained, a band-like non-usual picture area is generated in the upper part and the lower part of the screen of the Braun tube 6, and it becomes black like drawing 6 and drawing 7 showed, when the image of cinema size was displayed on the Braun tube 6 of the aspect ratio of 4:3, a non-usual picture area will be generated on right-and-left both sides of the screen of the Braun tube, and it will become black at them.

[0015] The non-usual picture area produced on the vertical part and right-and-left both sides of the screen of such the Braun tube 6 is covered with movable shield object 2a and 2b. When this movable shield object 2a and 2b are formed in the shape of [by flexible material] a sheet and the non-usual picture area of the display screen of the Braun tube 6 is covered, design-consideration is made so that it may differ from the color of the front part of a housing 1 greatly and a strange feeling may not arise.

[0016] Although it is located in the boundary part of the part of the non-usual picture area of the display screen of the Braun tube 6, and the part of a usual picture area by this movable shield object 2a and the end edge of 2b so that clearly also from drawing 1, the other end is wound around Reels 3a and 3b, respectively. Although not illustrated by these reels 3a and 3b, the pulley is connected with Reels 3a and 3b in the shape of the same axle. Between the revolving shafts of this pulley and Motors 5a and 5b, rubber belts 4a and 4b are laid, respectively. In this way, Motors 5a and 5b, rubber belts 4a and 4b, a pulley, and Reels 3a and 3b constitute the driving means of movable shield object 2a and 2b.

[0017] When these motors 5a and 5b drive, movable shield object 2a and 2b move through rubber belts 4a and 4b, a pulley, and Reels 3a and 3b, and the design according to an aspect ratio can be followed. If drawing 1 considers drawing seen from width, it corresponds to the cinema size of drawing 6, and if it considers drawing seen from the top, it corresponds to drawing 7.

[0018] Next, the system of the aspect ratio contained in actuation control and the video signal of the above-mentioned driving means, a distinction means to detect and judge cinema size information, and an actuation control means is explained based on drawing 2. This drawing 2 is the block diagram showing the system of this distinction means and an actuation control means, 17 in drawing is a video signal, and while this video signal 17 is inputted into a microcomputer 15, the synchronizing signal contained in a video signal 17 is taken out by the synchronizing signal ejection circuit 18. A distinction means included in a video signal 17 by this microcomputer 15 and the synchronizing signal ejection circuit 18 to distinguish an aspect ratio and cinema size information at least is constituted.

[0019] The synchronizing signal taken out in the synchronizing signal ejection circuit 18 is sent out to a microcomputer 15, and the output of a microcomputer 15 sends it out to the MDA motor controller 19 as an actuation control means.

[0020] Next, actuation is explained. Drawing 3 is a wave form chart for explaining this actuation, drawing 3 (A) shows a cinema size signal, and drawing 3 (B) shows the TV signal of the usual NTSC system. Although the cinema size signal of drawing 3 (A) is also an NTSC TV signal, a part of video level of the upper and lower sides of a screen is pedestals, and a screen does not shine. That is, in the TV signal of the usual NTSC system of drawing 3 (B), since it has doubled with the aspect ratio of cinema size to the video signal 12 of video being after 17H (1H= 63.5microsec) from falling of Vertical Synchronizing signal 11 as shown in this drawing (A), a video signal 12 comes only to the location which was considerably late for Vertical Synchronizing signal 11. Therefore, a microcomputer 15 detects the delay of this video signal 12, controls the MDA motor controller 19 according to the TV signal of NTSC system, distinction, and its distinction result, and controls actuation of Motors 5a and 5b to correspond Motors 5a and 5b to the display of the TV signal of NTSC system.

[0021] Next, the flow chart of drawing 5 explains movable shield object 2a in the case of displaying the information on cinema size on the Braun tube 6, and actuation SHIKEN of 2b. First, a microcomputer 15 clears A register at step S30. A register is that flag which is carrying out current movable shield object 2a and 2b what, and in the case of the TV signal of A= 1 and the usual NTSC system, it is A= 0 when having doubled with cinema size.

[0022] Here, it is the case of the TV signal of the usual NTSC system, and it progresses to step S31 from step S30, and a synchronizing signal is detected in the synchronizing signal ejection circuit 18, and this step S31 detects the vertical signal 11 at reading and step S32.

[0023] Subsequently, it progresses to step S33, and from Vertical Synchronizing signal 11, it counts 20H, and progresses to step S34, and the video signal after it is read at this step S34. this -- reading -- step S35 -- or subsequent ones it 20H -- a video signal distinguishes further whether it is a pedestal signal continuously, and as a result of that distinction, in the case of a pedestal, it progresses to step S36 from the YES side of step S35, it is distinguished from cinema size (referred to as A= 1), controls a controller 19 for MDA by step S37, and drives Motors 5a and 5b. Then, if it is made cinema size, Register A will be set to A= 1 at step S38.

[0024] Moreover, it is the point same when making it current cinema size and it changes to the size of a display of the TV signal of the usual NTSC system as a result of the decision in step S35 as the above. When progressing to step S39 from the NO side of step S35 and having doubled with cinema size at step S39 (A= 1) With a microcomputer 15, control the MDA controller 19 by step S40, and the MDA controller 19 drives actuation control of Motors 5a and 5b based on it at it. A is set to 0 at step S41, Motors 5a and 5b are driven, and the non-usual picture area of the upper part of the screen of the Braun tube 6 and the lower part is covered so that it may be adapted for the information display of the design corresponding to the aspect ratio of a basis, i.e., cinema size, in movable shield plate 2a and 2b.

[0025] Next, along with the flow chart of drawing 4, the procedure of the microcomputer 15 in the case of copying the video signal of an aspect ratio 4:3 to the Braun tube of an aspect ratio 16:9 is explained.

the video signal of an aspect ratio 4:3 -- Horizontal Synchronizing signal 10 -- 63.5microsec it is -- things -- 63.5microsec ***** -- he distinguishes an aspect ratio 4:3 or an aspect ratio 16:9, and is trying to drive Motors 5a and 5b

[0026] Namely, a synchronizing signal is read at step S20 in drawing 4 in the synchronizing signal ejection circuit 18. the read synchronizing signal -- step S21 -- a microcomputer 15 -- 63.5microsec It distinguishes. or -- It is 63.5microsec as a result of the distinction. As for the case, a microcomputer 15 controls the MDA motor controller 22 by step S22. In connection with this, actuation control of Motors 5a and 5b is performed so that the MDA motor controller 19 may suit the image display of an aspect ratio 4:3. When a signal becomes the aspect ratio of 16:9, the non-usual picture area of the right-and-left both sides of a screen when the image display of an aspect ratio 4:3 is shown for movable shield object 2a and 2b is covered, and it is made to suit a design view.

[0027] Then, when a video signal becomes the aspect ratio of 16:9 at step S23, That is, the synchronizing signal read in the synchronizing signal ejection circuit 18 is 63.5micro of Horizontal Synchronizing signals sec. In not coming out Progress to step S24 from the NO side of step S23, and the MDA motor controller 19 is controlled by the microcomputer 15. In connection with it, the MDA motor controller 19 performs actuation control of Motors 5a and 5b, movable shield object 2a and 2b are moved, and the design of the screen of a tele receiving set is returned.

[0028]

[Effect of the Invention] As mentioned above, according to this invention, as being contained in a video signal, an aspect ratio and cinema size information are distinguished with a distinction means as it is few. Since it constituted so that an actuation control means was controlled according to the distinction result, an actuation control means might perform actuation control of a driving means and a movable shield object might be controlled When the image of cinema size is copied out on the present standard television screen, or when the image of an aspect ratio 4:3 is copied out on the display means of an aspect ratio 16:9 Each non-usual picture area is automatically covered with a movable shield object, spoiling the design view around the display screen is lost, and the displeasure on a feeling of ** can be abolished.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the sectional view showing the Braun tube and the rough configuration of a circumference part of the television set with which the image output unit by one example of this invention is applied.

[Drawing 2] It is the block diagram of a distinction means and a distinction control means in an example same as the above.

[Drawing 3] It is a video signal wave form chart for explaining actuation of an example same as the above.

[Drawing 4] It is the flow chart which shows the procedure in the case of displaying a video signal on the display means of the aspect ratio 16:9 in an example same as the above.

[Drawing 5] It is the flow chart which shows the procedure in the case of displaying the image of cinema size information on the display means of the aspect ratio 4:3 in an example same as the above.

[Drawing 6] It is an explanatory view in the case of displaying the image of cinema size on the Braun tube of the conventional aspect ratio 4:3.

[Drawing 7] It is an explanatory view in the case of displaying the image of an aspect ratio 4:3 on the Braun tube of the conventional aspect ratio 16:9.

[Description of Notations]

1 Housing

2a Movable shield object

2b Movable shield object

3a Reel

3b Reel

4a Rubber belt

4b Rubber belt

5a Motor

5b Motor

6 Braun Tube

15 Microcomputer

18 Synchronizing Signal Ejection Circuit

19 MDA Motor Controller

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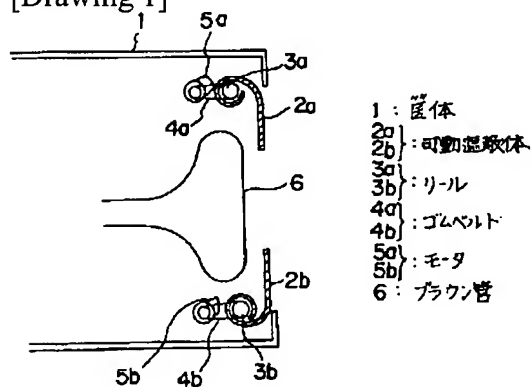
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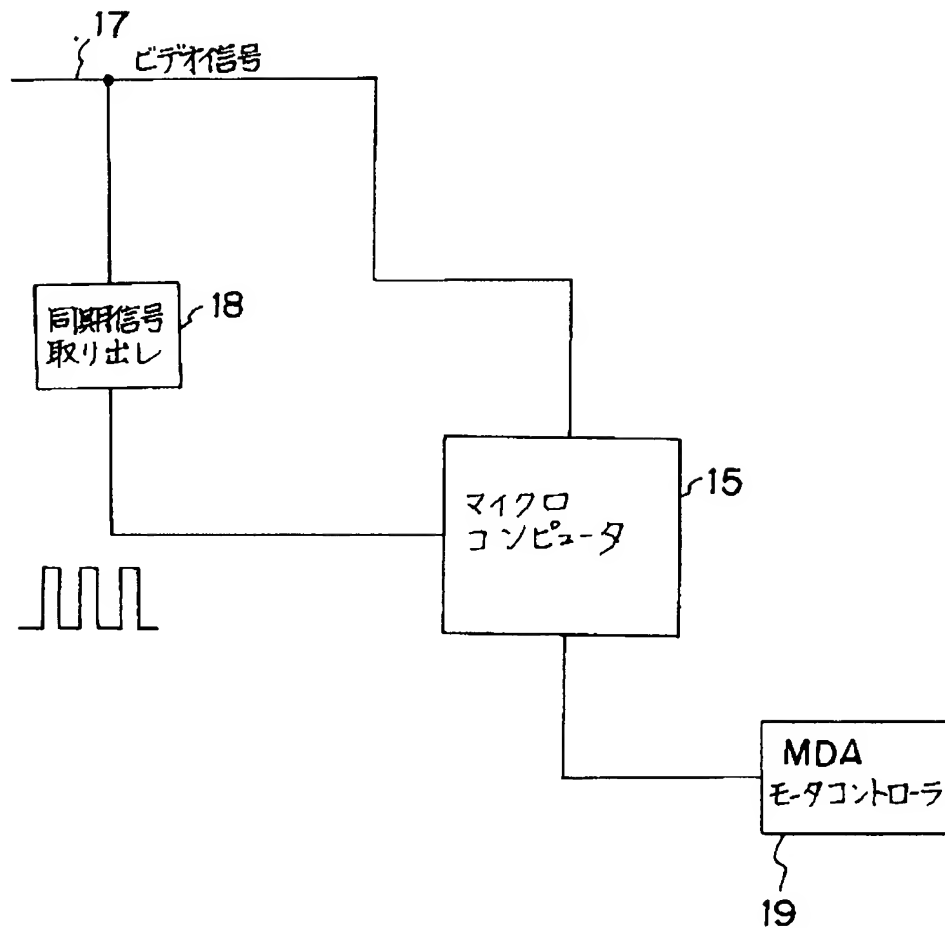
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DRAWINGS

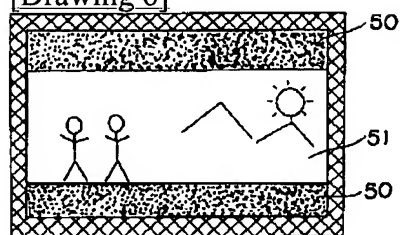
[Drawing 1]



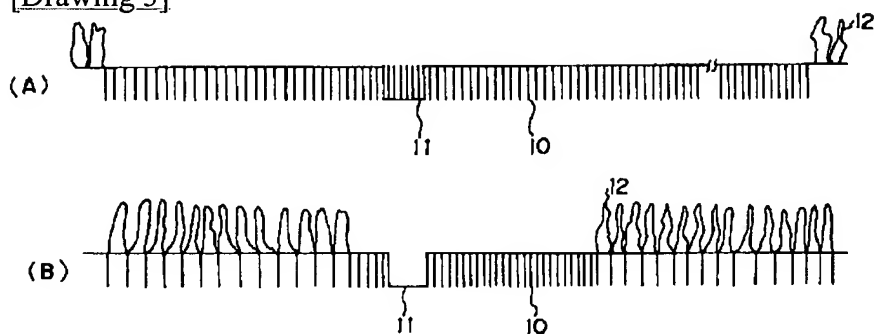
[Drawing 2]



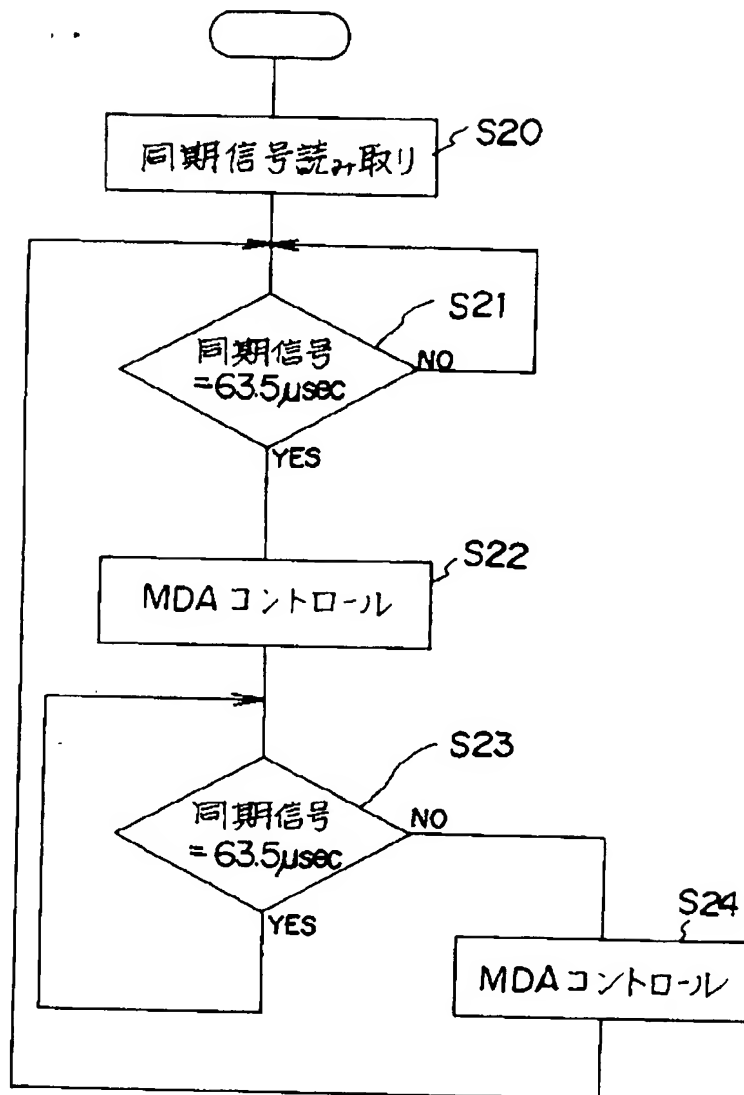
[Drawing 6]



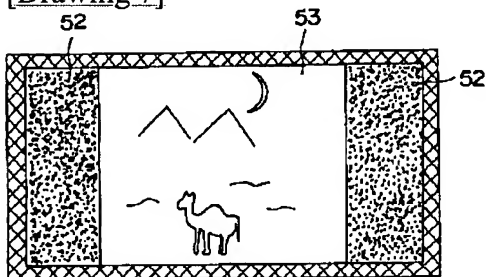
[Drawing 3]



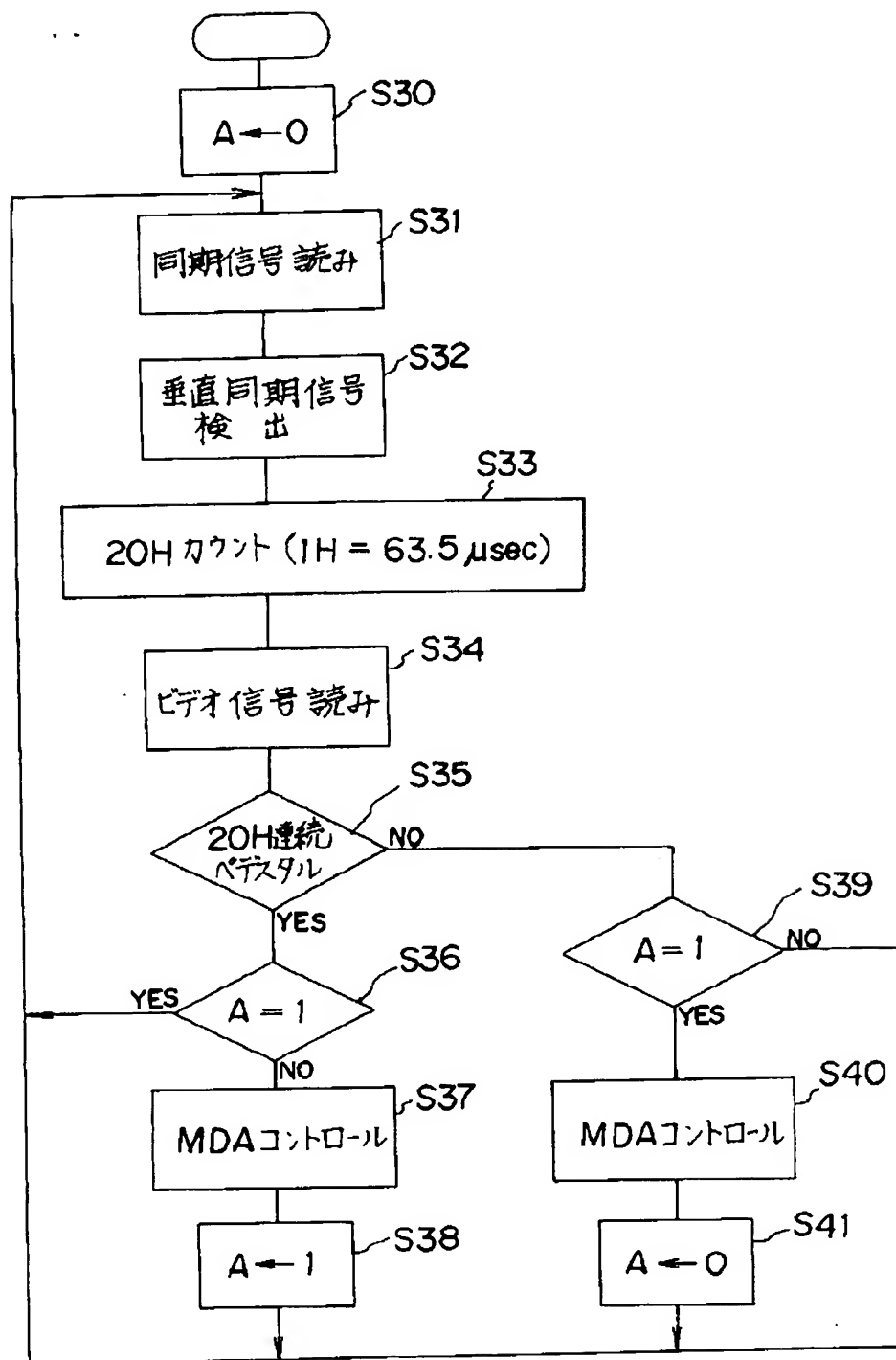
[Drawing 4]



[Drawing 7]



[Drawing 5]



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